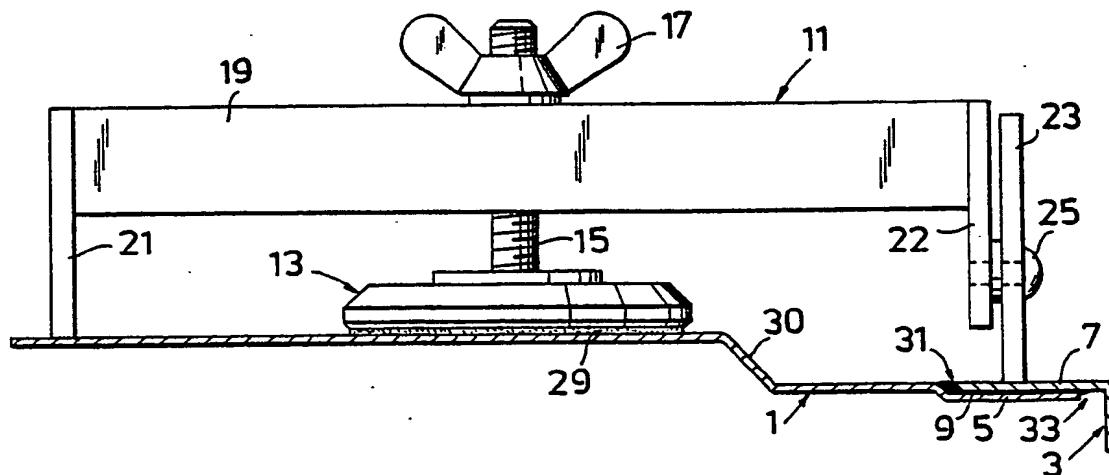




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(54) Title: DEVICE FOR SECURING AN OVERLAP ADHESIVE JOINT



(57) Abstract

Device for securing an overlap adhesive joint between two workpieces, in the form of vehicle body panel parts, particularly a jogged joint comprising a bridge element (11) adapted at its first end (21) to enable supporting engagement against the surface of the first workpiece (1) at a distance from the joint (5, 7, 9) and adapted at its second end (22, 23) to enable the achievement of joint-securing pressure against the surface of the second overlapping workpiece (3) in the region of the joint; an attachment plate (13) adapted such as to enable its being held by an adhesive joint (29) on said surface of the first workpiece in the region between the joint and the location of engagement of said first end against the surface of the first workpiece; and means (15, 17) for lockably connecting and tightening the bridge element (11) and attachment plate (13) such as to press the bridge element, applied for securing the joint, against the workpieces with said first end (21) engaging against the first workpiece (1) and said second end (22, 23) achieving securing pressure on the joint (5, 7, 9) determined by the amount of tightening.

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TITLE OF INVENTION

Device for securing an overlap adhesive joint.

TECHNICAL FIELD

5 The present invention relates to a device for securing an overlap adhesive joint between two workpieces, particularly a joggled joint. The device in accordance with the invention is intended for use in conjunction with joining vehicle body panel parts, particularly in conjunction with the 10 fastening of so-called economy panel parts.

TECHNICAL BACKGROUND

15 There is a great amount of rust and damage repairs to vehicle bodies. The kind of activity envisaged here is, for example, the repair of panel edges that have rusted away or the repair of collision and similar damage, in which so-called economy panel parts are utilized.

20 Up to now, these economy panel parts have usually been put in place with the aid of welding. Welding requires special equipment, extensive dismantling of combustible material and causes difficulties with respect to protection against later rust attack.

25 Economy panel parts have also been put in place while utilizing riveted and/or screwed joints, these methods being complex and from many aspects giving poorer joint properties, however.

30 More recently it has been proposed that body panel parts could be joined together using an adhesive joint. In order that an adhesive joint shall be sufficiently good there is required a uniform and well-adjusted compression of the joint while the adhesive sets. In certain cases, such compression can be provided by different kinds of cramps, namely when the joint is accessible from both sides. However, the latter is often not the case, particularly when joggled 35 joints are involved, where only one side is accessible, this side generally being the outside of the body panel. In these

cases a complicated fixture system has been used, which is applied with the aid of vacuum cups and which has a large number of jacking screws, which are first positionally adjusted along a carrying frame and are then tightened alternately such as to give uniform pressure loading on the adhesive joint. This method of securing the joint is expensive, time-consuming and difficult to utilize.

From US A 2,379,136 there is previously known a securing device intended for securing two overlapping panel edge portions in conjunction with joining said portions by welding. This known device consists of a T-shaped rigid element having a fixed electro-magnet at the lower end of its post for holding the element against a first panel part and having a jack screw at each of the free ends of the cross arm located on the top of the post, each jack screw extending parallel to the post and being in threaded engagement with said ends. One of the jack screws is intended for being tightened into engagement with said first panel part having the electro-magnet applied thereon. The other jack screw is intended for being tightened into engagement with the other panel part so as to give the desired clamping effect. This known device lacks versatility and is difficult to apply so as to give a desired well balanced clamping or compressing effect. It is not suitable for securing an overlap adhesive joint between thin vehicle body panel parts.

OBJECT OF THE INVENTION

The object of the present invention is to provide a simple securing device for overlap adhesive joints, the device being simple, cheap, easy to apply and handle, as well as being extremely adoptable and adjustable, i.e. it has the character of an uncomplicated, easily handled and cheap tool with the obvious advantages pertaining thereto.

SUMMARY OF THE INVENTION

The above-mentioned object is achieved with a device which, in accordance with the invention, has the distinguishing features disclosed in the accompanying claims.

5 The inventive device is thus essentially distinguished in that it includes a bridge element, one end of which is adapted such as to enable supporting engagement at a distance from the joint against the surface of the first workpiece, its other end being adapted for enabling the achievement of
10 joint securing pressure in the region of the joint against the surface facing towards the device of the second overlapping workpiece; an attachment plate arranged for enabling removable attachment, with the aid of an adhesive joint, to said surface of the first workpiece in the region between the
15 joint and the position of engagement of said first end against the surface of the first workpiece; and means for lockably connecting and tighten the bridge element and the attachment plate to urge the bridge element applied for securing purpose against the workpieces with said first end
20 engaging against the first workpiece and said second end achieving securing pressure on the joint determined by the amount of tightening. The term "bridge element" is intended to have a wide sense in the present context, and is intended to cover any element enabling two spaced points of support or
25 contact facing generally in the same direction and having therebetween an intermediate attachment plate and associated connection means.

In utilising a device in accordance with the invention, it may be mounted substantially over the first workpiece, because only an end portion of it needs to be situated above, and act on, the joint part of the second workpiece. As will be understood, this signifies that the second workpiece does not need to have any great free extension at the joint itself, and may, for instance, merely have a small free edge region (which thus constitutes the joint region) against which the device may be applied.

It is advantageous to apply the device with its longitudinal direction substantially transverse the longitudinal direction of the joint. In this way the load on said first workpiece will be as favourable as possible, i.e. it will be spaced clear of the joint. It will be understood that the device is suitably elongate and narrow (several devices can then be easily mounted parallel to each other or side by side at suitable mutual spacings), although other configurations are of course conceivable.

Of essential importance for the versatility and adaptability of the device is that the bridge element and said connection means are adjustable relative each other. Preferably said connection means are displaceable along the bridge element in its longitudinal direction, at least to a limited extent, and the bridge element is rotatable about the connection means in each displaced position. There is thus ensured maximum adjustability of the bridge element even after the attachment plate has been attached to said first workpiece, and the position of the connection means has been established.

Furthermore, it is preferred that the bridge element and said connection means are adjustable relative each other such that the bridge element is swingable or tilttable relative said connection means generally in a main plane for the bridge element, at least to a limited extent. This will give an additional possibility of adaption to various levels or inclinations of the places where the bridge element is to engage the plates.

It will thus be understood that the selection of the location where the attachment plate is adhered is not at all critical for the good function of the device, while any kind of adjustment of the bridge element position and thereby the position of the securing pressure exercised on the joint will be possible, both during fitting-up and afterwards.

The attachment plate is given an area such that on its being loaded there is no deformation of the coacting work-

piece, even if this is a thin vehicle body panel, and such that the tensional stress in a direction away from the workpiece caused by the tightening of the device, can be taken up to a required extent. However, the bond of the attachment plate can be suited so that the plate will be released if an attempt is made to tighten the device too much, which could give deformation in the joint.

For attaching the attachment plate, suitably an adhesive agent is used which has a substantially lower resistance to peeling or shearing than to pure tensional force away from the attachment surface on the workpiece. Thus, after use the attachment plate can be easily removed by peeling off or shearing, without the workpiece being damaged.

Adhesion of the attachment plate can be effected to advantage with the use of double-sized adhesive tape, which can easily be applied to the bottom of the attachment plate each time it is used.

It is to be emphasized that the utilisation of an attachment plate adhered in accordance with the invention signifies that the workpieces only need to be prepared minimally before applying the device. All that is required is that the surface of the first workpiece is cleaned (even this might not be necessary) sufficiently for the adhesive to take.

The securing pressure on the joint can be achieved by the end of the bridge element engaging directly against the joint, or via a separate intermediate press element. In the latter case there will be further adjustment and force distribution possibilities, since the position of the press element under the urging bridge element will be freely selectable. The press element is suitably made elongate and placed along the joint transverse the bridge element, whereby the pressure from the bridge element can be distributed along the joint in accordance with the number of joint engagement locations exhibited by the press element.

The invention will now be described in more detail with the aid of an exemplifying embodiment and with reference to the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWINGS

5 Fig. 1 is a schematic side view of a device in accordance with the invention applied for securing a joggled adhesive joint between two vehicle body panel parts.

Fig. 2 is a schematic view from above of the device in Fig. 1.

10 Fig. 3 is a schematic side view of the device in Fig. 1 supplemented by a press element and applied for securing another joggled adhesive joint between two body panel parts.

Fig. 4 is a schematic view from above of the device applied according to Fig. 3.

15 Fig. 5 is a schematic partial view from above of an elongate joggled adhesive joint, secured by utilising a plurality of devices in accordance with the invention.

DESCRIPTION OF EMBODIMENTS

20 Figs. 1 - 5 illustrate joining, while using a device according to the invention, two panel parts, either 1 and 3 or 2 and 4, the parts being substantially flat at the joint itself in the illustrated embodiments and which may be included in a vehicle body, for instance. The first panel part 1 or 2 is thus a part of the body proper, while the other panel part 3 or 4 is an economy panel part for replacing a part of a body panel damaged by rust. The respective joint is a joggled joint, the edge area of the part 1 or 2 being joggled to form a continuous flat flange or step 5 against which the edge portion 7 of the part 3 or 4 is adhered with a thin adhesive layer 9 brushed on in the form of a covering film. The step, which can be achieved in a manner known per se with a joggling tool, corresponds to the thickness of the part 3 or 4 plus the thickness of the adhesive layer, so that the outside of the part 3 or 4 will be flush with the outside of the part 1 or 2 at the joint. The width of the joggled part or flange 5 is typically about 20 mm. The thickness of the adhesive layer 9 is typically 150 to 200 μm . The adhesive is a

2-component polyurethane adhesive which sets already at about 20°C. The thickness of the panel sheet is typically about 1 mm.

One or more devices in accordance with the invention are utilized for compressing the joint while the adhesive sets. Such a device includes a bridge element 11, an attachment plate 13 and connection means 15, 17. The bridge element 11 is a straight beam element and comprises two spaced, mutually parallel flats 19,20 on edge, with downwardly, dependent end elements 21,22, also of flats, at either end. The end elements 21,22 are welded to the flats 19,20, thus forming a rigid connection thereof. The end elements 21,22 are at right angles to the plane of the flats 19,20. The end elements 21,22 are of the same length and are downwardly cut square to give the best engagement surface. There is an extension element 23 downwardly on the end element 22, this also being in the form of a straight flat fastened parallel to the element 22 and rotatably with the aid of a journalling pin 25. The element 23 is mounted with unequal distances to its ends so that two different extension lengths can be obtained. The mounting is also situated sufficiently high up on the end element 22 so that the element 23 is entirely above the lower engagement surface of the end element 22 after being rotated 90° (see Fig. 3).

The attachment plate 13 is a flat disc, and on its underside it is provided with double-sized adhesive tape 29 for attaching the plate to the panel part 1 or 2. There is a threaded rod 15 projecting at right angles to the attachment plate, the length of the rod being such that it passes between and projects beyond the opposite sides of the flats 19,20. The diameter of the rod 15 is somewhat less than the spacing of the flats 19,20. A wing nut 17 is threaded on to the rod 15 and together they form means for connecting the attachment plate 13 and bridge element 11.

When the device according to Figs. 1 and 2 is applied, the attachment plate 13 is attached at a suitable distance

from the adhesive joint 5,7,9. If not already loosely mounted on the rod 15, the bridge element 11 is now fitted and the wing nut 17 loosely threaded on. As will be understood, the bridge element 11 may now be readily both displaced and rotated relative the now fixed rod 15 so that the bridge element end 22,23 can be suitably placed above the joint. Use of the extension element 23 in one of its extension positions is depicted in Fig. 2, for providing securing pressure to the joint. It will be easily understood that this pressure can readily be regulated by tightening the wing nut 17 to a greater or lesser extent. It will be further understood that if the panel part 1 did not have the joggle or step 30, it would not have been necessary to utilize the extension element 23. In such a case the end element 22 could have abutted directly against the panel part 7.

It has been found that securing a joint with the utilisation of a device in accordance with the invention gives very good static loading, which is uniformly distributed and does not give rise to injurious bending or peeling forces. On the contrary there is obtained a tendency for the respective panel edges to be deflected inwards towards the respective abutting panel, as is indicated by arrows 31,33 in Fig. 1, which advantageously contributes to provide a homogeneous and resistent joint.

It has further been found that applying the attachment plate comparatively close to the joint results in an upwardly directed counter force on the plate in question, which favourably counteracts the downward force on the joint itself, whereby the contour of the panel in the region of the joint is retained. In other words, securing the joint in this way does not give rise to an inward deflection or deformation in the vicinity of the joint.

It should be emphasized that the device according to the invention can have a low configuration. This is of importance when applying the device on vertical panel parts (this often being the case in conjunction with vehicle body pa-

nels), because then the centre of gravity of the device will lie close to the panel parts which means that the bending moment on the attachment plate caused by the force of gravity will be low.

5 A variation of the device in accordance with the invention is illustrated in Figs. 3 and 4, a separate press element 35 being utilized for transferring the compressive force from the bridge element 11 to the joint. This separate element 35 is a straight, square hollow tube, which is placed 10 under the compressive end of the beam elements 19,20 at right angles to the longitudinal direction of the bridge element 11. The element 35 is provided at either end with two abutment surfaces 37,38 on its underside. It will be understood 15 that the element 35 may easily be given a desired location relative the bridge element 11, thereby achieving a desired distribution and spread of the securing pressure. As will be seen in Fig. 3, the elements 22 and 23 have no function in this case, and they could thus be eliminated.

20 Finally in Fig. 5, there is schematically illustrated how a plurality of devices in accordance with the invention can be used for securing a long adhesive joint of the kind already illustrated. Furthest to the right where the joint begins, there is utilized a device in the way illustrated in Fig. 1. The devices successive to it are utilized in the way 25 illustrated in Fig. 3. It will be understood that even if all the devices in Fig. 5 are illustrated as being applied at right angles to the longitudinal direction of the joint they could have some other angle if so desired, e.g. due to projecting obstacles, lack of space for attaching the plate 13 30 etc.

35 It will be understood that a device in accordance with the invention is extremely simple to handle, apply and adjust; that it has an uncomplicated structure which is cheap and which can be readily dimensioned for different loads; that it can be used without the workpieces involved being subjected to any deformations or other damage; that it is

cheap and requires a minimum of consumption material (only adhesive); that it does not require any external power supply at all, or any other extraneous aids, such as welding, pop rivets, screws etc; that as a result of its implementation it is usable even where the adhesive joint is difficult of access; and not least, that it gives a very good securing effect, particularly in conjunction with joggled joints.

5 The invention is of course not restricted to the illustrated and described embodiments, alterations and modifications thus being possible within the scope of the following 10 claims.

CLAIMS

1. Device for securing an overlap adhesive joint between two workpieces, in the form of vehicle body panel parts, particularly a joggled joint, *characterized* in that it includes a bridge element with its first end adapted for enabling supporting engagement against the surface of the first workpiece at a distance from the joint, and its second end adapted for achieving joint securing pressure against the surface of the second overlapping workpiece in the region of the joint; an attachment plate adapted to enable its attachment with the aid of a detachable adhesive joint on the surface of the first workpiece in the region between the joint and the location of engagement of said first end against the surface of the first workpiece; and means for lockably connecting and tightening the bridge element and attachment plate for pressing the bridge element, which has been applied for securing the joint, against the workpieces with said first end engaging against said first workpiece and said second end achieving securing pressure on the joint, this pressure being determined by the degree of tightening.

2. Device as claimed in claim 1, *characterized* in that the attachment plate is adapted for being attached to the first workpiece with the aid of double-sized adhesive tape.

3. Device as claimed in claim 1 or 2, *characterized* in that the adhesive utilized in the adhesive joint holding the attachment plate has the property that the adhesive joint obtained on application has substantially higher resistance to tensional stress substantially normal to the first workpiece than to peeling or sheering action, so that the plate can be readily removed after the securing process is terminated.

4. Device as claimed in any one of claims 1, 2 or 3, characterized in that the adhesive utilized in the adhesive joint for the attachment plate is selected such that the adhesive joint obtained on application relinquishes its hold at

a predetermined tensional stress substantially normal to the first workpiece.

5. Device as claimed in any one of the preceding claims, *characterized* in that the second end of the bridge element is adapted for direct engagement against the second workpiece.

10. Device as claimed in any one of claims 1 - 4, *characterized* in that said second end of the bridge element is adapted for achieving joint-securing pressure via a separate press element which can be adjusted separately in relation to said second end.

15. Device as claimed in claim 6, *characterized* in that the press element is elongate and adapted for placing along a longitudinal joint, the press element having at least two spaced engagement surfaces for longitudinally separated engagement against the overlapping part of the second work-piece.

20. Device as claimed in any one of the preceding claims, *characterized* in that said connection means and bridge element are at least limitedly displaceable in relation to each other in the longitudinal direction of the bridge element.

25. Device as claimed in any one of the preceding claims, *characterized* in that said connection means and the bridge element are at least limitedly rotatable in relation to each other.

30. Device as claimed in any one of the preceding claims, *characterized* in that said connection means includes a screw element upstanding from the attachment plate, said screw element being intended to pass through a corresponding preferably longitudinally elongate aperture in the bridge element, and a nut element intended for screwing on to the screw element projecting through the aperture, such as to engage against the bridge element.

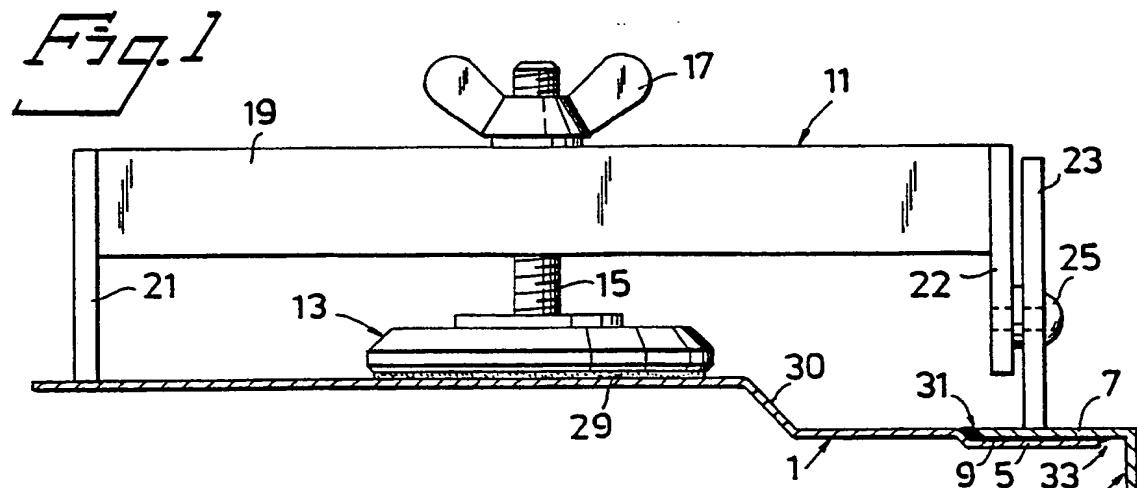


Fig. 2

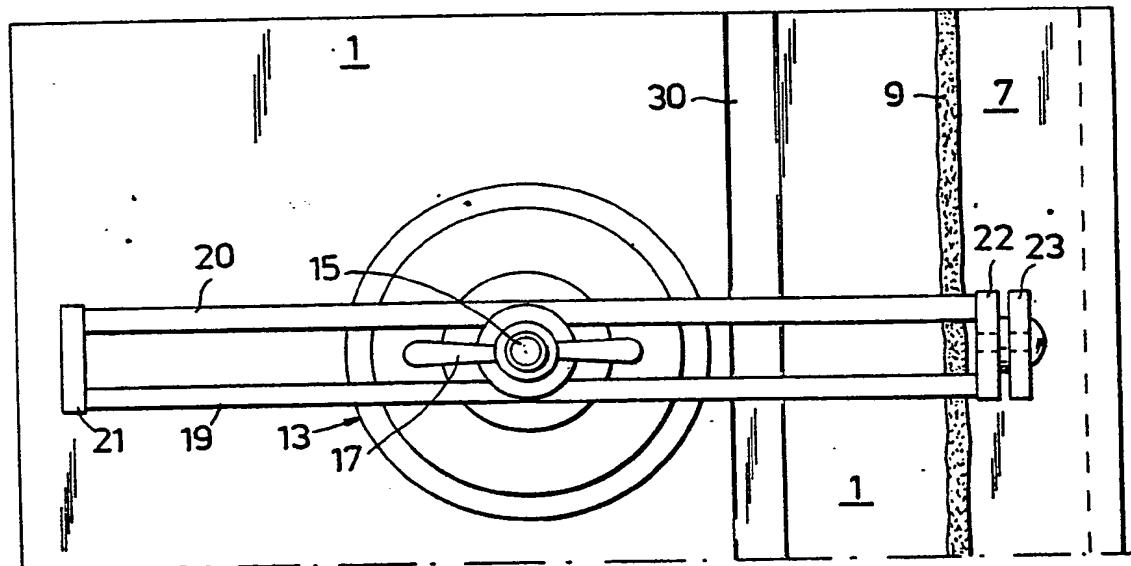
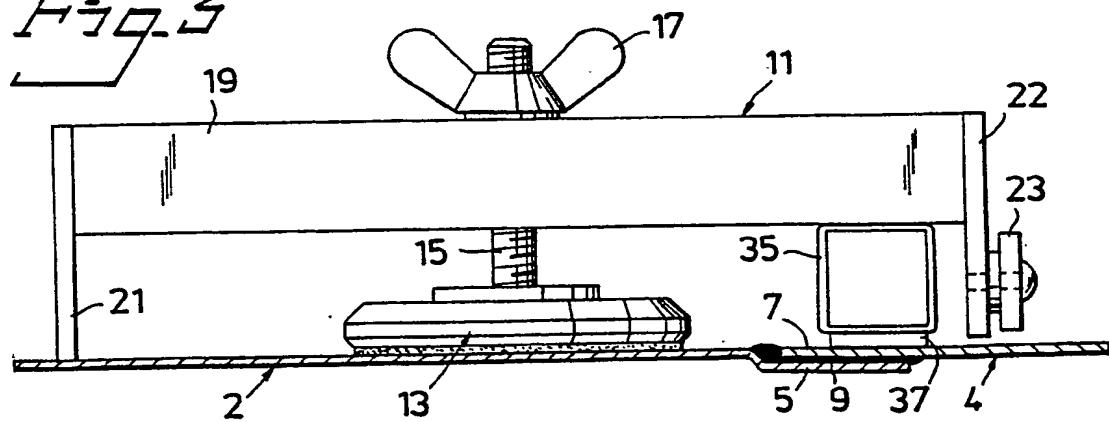


Fig. 3



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Fig. 4

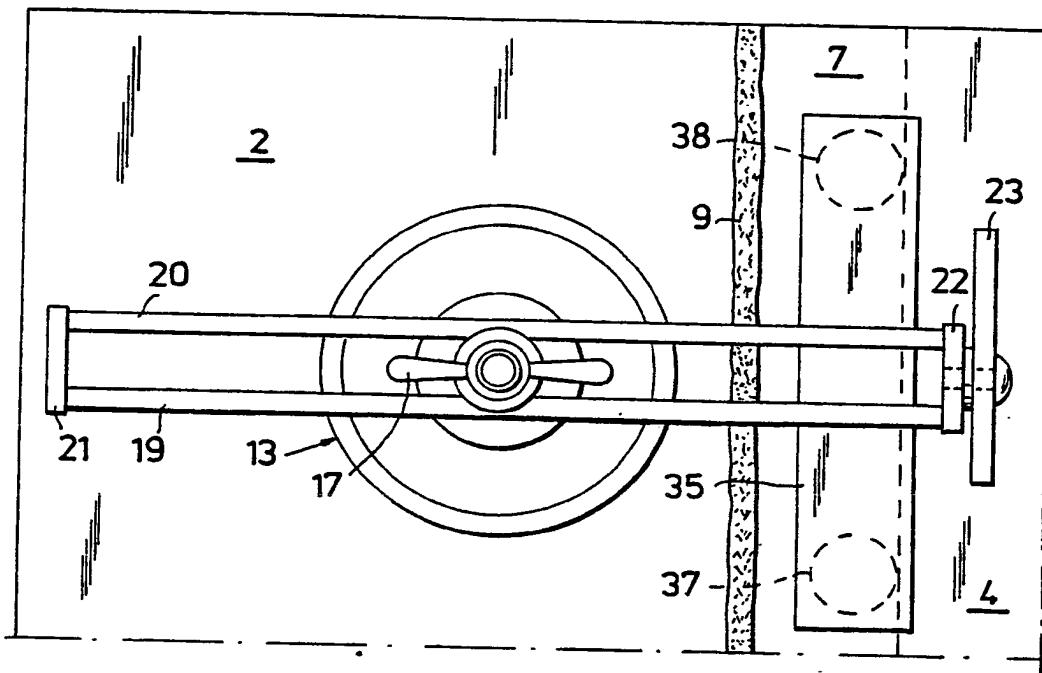
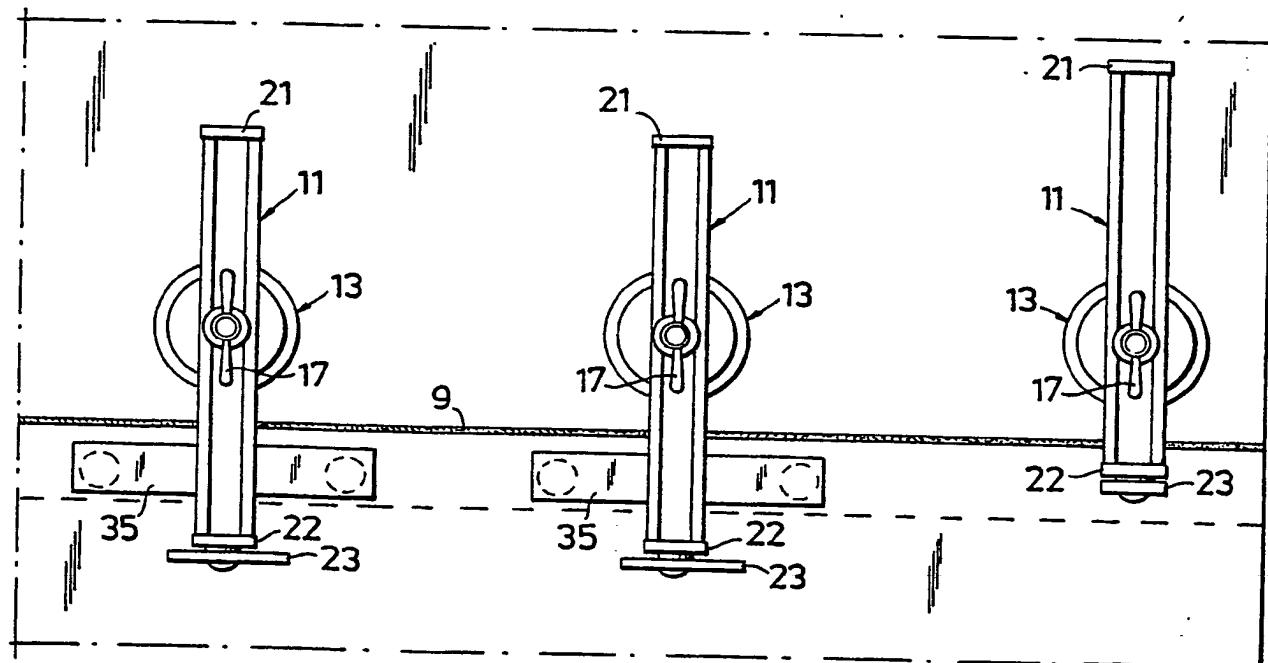


Fig. 5



SUBSTITUTE SHEET

INTERNATIONAL SEARCH REPORT

International Application No PCT/SE86/00393

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) *

According to International Patent Classification (IPC) or to both National Classification and IPC

4

B 25 B 11/00

II. FIELDS SEARCHED

Minimum Documentation Searched ?

Classification System	Classification Symbols
IPC 4	B 25 B 5/00, /14, /16, 11/00; B 23 Q 3/06, /08; B 25 H 1/08; C 09 J 5/00, /10; F 16 B 47/00 .../...

Documentation Searched other than Minimum Documentation
to the Extent that such Documents are Included in the Fields Searched *

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT *

Category *	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	US, A, 2 379 136 (G C ERWIN) 26 June 1945	1-9
A	US, A, 2 713 379 (H B SISSON) 19 July 1955	
A	DE, A, 1 752 232 (R L ROBINSON) 19 May 1971	8-9
A	FR, A, 2 414 140 (IAO INDUSTRIE RIUNITE SPA) 3 August 1979	
A	GB, A, 1 146 892 (B J FRYE) 16 March 1966	
P	SE, A, 8502952-8 (O A SÖLLMAN) 24 July 1986	

* Special categories of cited documents: ¹⁰

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the International filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search

1986-11-20

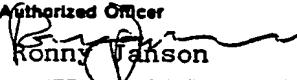
Date of Mailing of this International Search Report

1986-11-24

International Searching Authority

Swedish Patent Office

Signature of Authorized Officer



FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

II

Fields searched (cont)

US Cl. 29: 238;
100: 211, 212;
156: 282, 287;
269: 8, 20, 22, 24, 25, 35, 87.2, 88,
95-102

V. **OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE**

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. Claim numbers because they relate to subject matter not required to be searched by this Authority, namely:

2. Claim numbers because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claim numbers because they are dependent claims and are not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).

VI. **OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING**

This International Searching Authority found multiple inventions in this international application as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

The additional search fees were accompanied by applicant's protest.

No protest accompanied the payment of additional search fees.

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008793785 **Image available**

WPI Acc No: 1991-297799/199141

Cash-less payment system for services by telephone - uses portable acoustic emitters with stored identification data encoded and sent to service provider

Patent Assignee: BERNARD A (BERN-I)

Inventor: BERNARD A

Number of Countries: 016 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 451057	A	19911009	EP 91400916	A	19910404	199141 B
FR 2660771	A	19911011			199151	
US 5136632	A	19920804	US 91680550	A	19910404	199234
JP 6054088	A	19940225	JP 9199801	A	19910405	199413
EP 451057	B1	19941109	EP 91400916	A	19910404	199443
DE 69105024	E	19941215	DE 605024	A	19910404	199504
			EP 91400916	A	19910404	
ES 2065629	T3	19950216	EP 91400916	A	19910404	199513
JP 3182783	B2	20010703	JP 9199801	A	19910405	200139

Priority Applications (No Type Date): FR 904368 A 19900405

Cited Patents: EP 216521; EP 217308; EP 318454; EP 325302; FR 2592188; FR 2624679

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 451057 A

Designated States (Regional): AT BE CH DE ES GB GR IT LI LU NL SE

US 5136632 A 6 H04M-017/00

JP 6054088 A H04M-015/00

EP 451057 B1 F 7 G07F-007/00

Designated States (Regional): AT BE CH DE DK ES GB GR IT LI LU NL SE

DE 69105024 E G07F-007/00 Based on patent EP 451057

ES 2065629 T3 G07F-007/00 Based on patent EP 451057

JP 3182783 B2 5 H04M-015/00 Previous Publ. patent JP 6054088

Abstract (Basic): EP 451057 A

The payment system uses portable electronic devices (J) each having a stored identity, nominal value and expiry date. Each device emits a coded sequence of acoustic tones (SQ), with the identity, date of use and the service encoded into the stream.

Various specialised service providers on the telephone network respond to the acoustic tones, initially by identifying the user. The tones control transactions on a computer, or the service provides a voice response once the user is identified.

ADVANTAGE - Fast, anonymous and reliable method of payment by telephone. (8pp Dwg.No.2c/2)

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Abstract (Equivalent): EP 451057 B

Telephone service payment system, characterised in that it comprises: portable electronic devices (J) each having a specific identity, a face value and a time limitation data, each device being able to transmit when ordered by the user a coded sequence of acoustic tones (SQ), this sequence being characteristic of the identity of the device, the date of use and a particular service, specialised vocal host computers in a particular service (SVS1, SVS1') and connected to a telephone line (LT), these host computers being able to be telephoned by the user and able to receive the coded sequence (SQ) of acoustic tones transmitted by the portable electronic device (J) of the calling user and to translate this sequence into data processing data, at least one computer affiliated to a particular service (QA, QA') and connected to the specialised vocal host computers (SVS1, SVS1') in this service by means of a data processing data transmission line (LDT), this computer being able to define a transaction corresponding to the service in question, an accounts management computer (OGC), these accounts corresponding firstly to the various service suppliers, and secondly to the various portable electronic devices (J) in service, this accounts management computer being connected to the computers affiliated to the various services (QA1, QA2) by data transmission lines (TD', TD'') from which it receives for each transaction to be effected the sequence of coded data belonging to the electronic device used, as well as the characteristics of the transaction to be effected, this accounts management computer (OGC) being able to decode the sequence of data it receives, identify the corresponding account and to debit or credit the latter according to the transaction to be effected.

(Dwg. 1/2c)

Abstract (Equivalent): US 5136632 A

Telephone service payment system, has portable electronic devices each having a specific identity, a face value and a time limitation date. Each device is able to transmit when ordered by the user a coded sequence of acoustic tones. This sequence is characteristic of the identity of the device, the date of use and a particular service. Specialized vocal host computers in a particular service and connected to a telephone line, these host computers are able to be called by the user and able to receive the coded sequence of acoustic tones transmitted by the portable electronic device of the calling user and to translate this sequence into data processing data. At least one computer is affiliated to a particular service and connected to the specialized vocal host computers in this service by a data processing data transmission line. This computer is able to define a transaction corresponding to the service in question.

An accounts management computer is provided, these accounts corresponds firstly to the various service suppliers, and secondly to the various portable electronic devices in service. This accounts management computer is connected to the computers affiliated to the various services by data transmission lines from which it receives for each transaction to be effected the sequence of coded data belonging to the electronic device used, as well as the characteristics of the transaction to be effected. This accounts management computer is able to decode the sequence of data it receives, identify the corresponding account and to debit or credit the account according to the transaction to be effected.

ADVANTAGE - Has fast anonymous way of payment.

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